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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/656,763 09/07/00 WU

L 19000.0045/P

EXAMINER

MMC2/0709

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NGUYEN, H
ART UNIT

PAPER NUMBER

2816
DATE MAILED:

07/09/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/656,763

Applicant(s)

WU ET AL.

Examiner

Hai L. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 22 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 16-21 is/are allowed.
- 6) ☐ Claim(s) 1-15 and 22-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 07 September 2000 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 3.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 8a –8b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9-15, 22-24, and 26-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "a delayed output signal" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claims 10-15 are rendered indefinite by the deficiencies of base claim 9.

Claim 22 is indefinite because the recitation "a second plurality of delay cells respectively receiving channel output signals from the first plurality of delay cells and outputting the channel output signals", in line 5, is unclear. It is not clear, which preferred embodiment is referred to by that recitation.

Claims 23-24 are rendered indefinite by the deficiencies of base claim 22.

Claims 26-30 recite the limitations "a plurality of clock signals" in line 1. There is insufficient antecedent basis for these limitations in the claims. Furthermore, claim 29 is indefinite because the recitation "controlling step controls the output of a plurality of the

series of channel output signals based on different channel output signals" is unclear. It is not clear which preferred embodiment is referred to by that recitation; and claim 30 is indefinite because the recitation "controlling step controls the output of each of the series of channel output signals based on different combinations of channel output signals" is unclear. It is not clear, which preferred embodiment is referred to by that recitation.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 9, 13, and 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Meyer (US 5,448,191).

With regard to claims 1 and 25, Meyer discloses in Figs.4-6g a signaling device and a method of use thereof, comprising a signal generator (27) generating a plurality of output signals (NF1,NF2,NF3) at a plurality of respective time intervals; and a plurality of time interval control units regulating the respective time intervals of the plurality of output signals, wherein the plurality of time interval control units individually control the respective time intervals between the plurality of output signals so as to produce substantially uniform time spacing between each of the plurality of output signals.

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With regard to claims 2 and 26, a plurality of output buffers (32,34,36) respectively outputting a plurality of substantially uniformly time spaced channel signals based on respective ones of the plurality of time interval control units.

With regard to claim 3, the signal generator further comprises a first plurality of delay cells (the elements of 10-2) respectively generating the plurality of output signals.

With regard to claim 9, Meyer discloses in Figs.4-6g a time-interleaved architecture comprising a first set of delay cells arranged in series (10_2), wherein each of the first set of delay cells produces a delayed output signal (Fh1,Fh2,Fh3); and a second set of delay cells (27,28) respectively coupled to ones of the first set of delay cells; wherein each of the second set of delay cells receives a unique control signal (from 44) controlling the timing of the channel output signal output by each of the second set of delay cells.

With regard to claim 13, wherein each of the first set of delays cells (10_2) is associated with at least two delay cells of the second set of delay cells (36,S2;32,S1;34,S3).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer.

With regard to claims 14 and 15, the above-discussed device of Meyer meets all of the claimed limitations except for a set of output buffers (26a-26d in instant Fig.4). However, this would have been obvious to one of ordinary skill in the art who knows that it is common in the art output buffers for buffering the output signals, official notice being taken of this fact. Therefore, it would have been obvious to one of ordinary skill in the art to implement the output buffers with the prior art (Figs.4-6g of Meyer) in order to eliminate unnecessary loading from the subsequent circuits on the device, which generates the channel output signals. Furthermore, the limitation in claim 15, i.e., the limitation of the intended use of the output "permitting real time calibration of the channel output signals", it is noted that Meyer also has the ability to be used for calibrating as well and therefore this limitation is met by the reference.

Allowable Subject Matter

8. Claims 4-8, 10-12, 27, and 28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claims 16-21 are allowed.

The prior art of record does not disclose or suggest a signaling device (as shown in Figs.4 and 6) and a method of use thereof, as recited in claims 4 and 27; and specifically the limitation directed to the plurality of time interval control units are a

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second plurality of delay cells (24a-24d, 25a-25d) used to delay respective ones of the plurality of output signals based on a plurality of individual control signals (Vctrl1-Vctrl8) respectively received by the second plurality of delay cells.

The prior art of record does not disclose or suggest a signaling device (as shown in Figs.4 and 6), as recited in claim 10, and specifically the limitation directed to a plurality of the unique control signals (Vctrl1-Vctrl8) received by the second set of delay cells (24a-24d,25a-25d) are based on unique combinations of the channel output signals ($\Phi 1$ - $\Phi 8$) output by the second set of delay cells, and wherein the unique control signals individually control the timing of the channel output signals so as to produce substantially uniform time spacing between transitions of the channel output signals.

The prior art of record does not disclose or suggest a signaling device (as shown in Figs.4 and 6) and a method of use thereof, as recited in claims 16 and X, comprising: a phase detector (44); a charge pump (42); a loop filter (40); first plurality of delay cells (22a-22d); plurality of output buffers (26a-26d,27a-27d); a second plurality of delay cells (24a-24d,25a-25d); and specifically the limitation directed to a calibration loop, coupled to the second plurality of delay cells, wherein the calibration loop includes a plurality of delay comparators (60a-66a), each delay comparator respectively outputting individual delay control signals for respective ones of the second plurality of delay cells.

Conclusion

10. Regarding claims 22-24 and 29-30, the patentability thereof can not be determined because of their indefiniteness.

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11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Baba et al. (US 6,137,336) is cited as of interest because it discloses a circuit and method for generating multiphase clock.

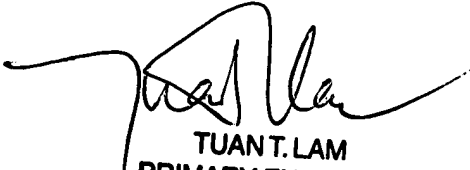
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai L. Nguyen, whose telephone number is 703-306-9178. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

HLN

June 27, 2001


TUAN T. LAM
PRIMARY EXAMINER